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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,357	11/20/2003	Israel Levy	150.002	1664

7590 04/12/2005

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EXAMINER

VALENTI, ANDREA M

ART UNIT	PAPER NUMBER
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3643

DATE MAILED: 04/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/718,357

Applicant(s)

LEVY, ISRAEL

Examiner

Andrea M. Valenti

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7-10 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "rapid growth" in claim 7 is a relative term which renders the claim indefinite. The term "rapid" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

The statement of "to allow rapid growth" is very broad and subjective since it could be a day, hours, or years. Rapid in comparison to what, non-land based farming? Applicant should quantify the rapid growth, e.g. on page 11 line 5 of applicant's specification it is indicated that "The technology of the present invention has been successfully applied to a network of land-based ponds, to achieve yields up to 1 Kg/m²/week during the growing season." Is this what applicant intends as rapid growth?

Claims 8, 9, 10, and 20 are rejected as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10, 12-15, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,358,858 to Meng et al in view of U.S. Patent No. 3,195,271 to Golueke et al.

Regarding Claims 7, 9 and 10, Meng teaches a method of cultivating seaweeds in land based sea water ponds by producing spores and sporelings in cultures maintained in a laboratory facility (Meng Col. 2 line 22); growing the sporelings in a suspension culture under optimal growth conditions (Meng Col. 2 line 25-26); transferring the matured sporelings to large cultivation tanks that are aerated (Meng Col. 3 line 21 "fresh air") to allow for rapid growth (Meng Col. 2 line 39); harvesting; drying; and grinding (Meng Col. 2 line 4-6) to result in a product for human consumption or pharmaceutical use (Meng Col. 1 line 13).

Meng is silent on a plurality of cultivation tanks and the use of seawater as a medium. However, it would have been obvious to one of ordinary skill in the art to modify the teachings of Meng at the time of the invention with a plurality of tanks since the modification is merely the duplication of a known element for a multiple effect performing the same intended function. Modified to increase production yields. This limitation does not present a patentably distinct limitation over the cited prior art. [*In re Harza*, 274 F.2d 669, 671, 124 USPQ 378, 380 (CCPA 1960)].

Golueke teaches that it is old and notoriously well-known to cultivate the seaweed in seawater (Golueke Col. 1 line 67 and Col. 2 line 33). It would have been obvious to one of ordinary skill in the art to further modify the teachings of Meng with the teachings of Golueke at the time of the invention since the salinity is known to promote desired seaweed development and to inhibit the growth of other undesired algae as taught by Golueke (Golueke Col. 2 line 6). One of ordinary skill in the art would be motivated to modify the teachings of Meng with the teachings of Golueke also based the location of the facility and readily available abundance of seawater.

Regarding Claim 20, Meng as modified teaches the seaweed product of Porphyra (Meng Col. 1 line 31 and Col. 4 line 66).

Regarding Claim 1, Meng teaches a system for land based cultivation of seaweeds by phycological laboratory facilities suitable to produce spores and sporelings in cultures (Meng Col. 3 line 6 and Col. 4 line 65-66); a plurality of sleeves (Meng Col. 2 line 31) housed in temperature controlled land based facilities to allow the maturation of the sporelings (Meng Col. 1 line 66-68); a plurality of small aerated inoculation tanks (Meng Col. 2 line 34) enriched with defined nutrients under optimal conditions, to allow the mature sporelings to grow into seaweed pieces; and a plurality of large aerated cultivation tanks to transfer the seaweed pieces into to grow to full size (Meng Col. 2 line 40).

Meng teaches the importance of aeration, but is silent on the use of seawater. However, Golueke teaches that it is old and notoriously well-known to cultivate the seaweed in seawater that is aerated (Golueke Col. 1 line 67 and Fig. 1 #21). It would

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have been obvious to one of ordinary skill in the art to modify the teachings of Meng with the teachings of Golueke at the time of the invention for a means of providing ideal artificial growth conditions by simulating some of the natural environmental conditions in which seaweed grows.

Meng as modified is silent on a plurality of tanks. However, it would have been obvious to one of ordinary skill in the art to modify the teachings of Meng at the time of the invention since the modification is merely the duplication of a known element for a multiple effect performing the same intended function. The plurality of tanks enables mass production in a cost effective manner and enables one to control different environmental conditions, stages of development, and nutrients in various tanks.

Regarding Claim 2, Meng as modified teaches a land based technology comprising a seeding unit producing spores (Meng Col. 3 line 6); sporeling production unit (Meng Col. 3 line 11); maturation unit (Meng Col. 3 line 16); cultivation unit (Meng Col. 3 line 20); harvesting; drying; and grinding (Meng Col. 2 line 4-6).

Regarding Claim 3, Meng as modified teaches the seaweed species grown in land based seawater ponds is Porphyra (Meng Col. 1 line 31).

Regarding Claim 4, Meng as modified teaches the nutrients added to the seawater are designed to produce a plurality of seaweeds that are used as neutraceuticals, food components, pharmaceuticals or cosmetics (Meng Col. 1 line 13).

Regarding Claim 5, Meng as modified teaches production of spores in petri dishes (Meng Col. 3 line 6); cultivation of sporelings in sleeves under environmentally controlled conditions (Meng Col. 3 line 16); growth in small and large tanks (Meng Col.

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3 line 20 and col. 2 line 34-41). Meng is silent on separating the inoculation and harvesting into separate ponds. However, it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention since the modification is merely the separation of known steps into replicated ponds for the efficient management of the system of having a continuous production at different stages and for more control over the environmental conditions at particular points in production.

Regarding Claim 6, Meng as modified is inherently programmable for production throughout the year since Meng teaches controlling the light and temperature conditions for the cultivating seaweed.

Regarding Claim 8, Meng as modified teaches the large cultivation tank contains suitable nutrients to ensure high yields of seaweed products (Golueke Col. 2 line 34).

Regarding Claims 11, 13 and 17, Meng as modified is silent on the small aerated inoculation tanks have the volume capacity of about 40 liters, and the large aerated cultivation tanks have the volume capacity of about 4000 liters; varying sizes including 30-500 m² ; or the volume capacity of each of the sleeves is about 20 liters, of the tanks used in stage 1 is about 40 liters, of the large tanks used in stage 2 is about 4000 liters, of inoculation ponds in stage 3 is about 30m² and the cultivation ponds used in stage ponds used in stage 4 of 500m².

However, it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention through routine tests and experimentation for

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efficient and optimized production sequence considering desired production quantity and the availability of land base.

Regarding Claim 12, Meng as modified teaches the importance of nutrients (Golueke Col. 2 line 34) and N:P nutrients are notoriously well-known fertilizers, but Meng is silent on seawater being enriched with 0.5mM NH_4Cl and 0.05mM Na_2PO_4 , at least two times a week, for at least three weeks. However, it would have been obvious to one of ordinary skill in the art to modify the teachings at the time of the invention through routine laboratory tests and experimentation to derive the desired fertilizer application quantity and frequency based on different seasons of the year or the seaweeds development stage.

Regarding Claim 14, Meng as modified teaches the drying unit comprises centrifugation drums or low temperature ovens (Meng Col. 2 line 49).

Regarding Claim 15, Meng as modified teaches the seaweed species grown in land based seawater ponds include *Porphyra* (Meng Col. 1 line 31).

Regarding Claims 18 and 19, Meng as modified teaches the seaweed product of *Porphyra* (Meng Col. 1 line 31 and col. 4 line 66).

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,358,858 to Meng et al in view of U.S. Patent No. 3,195,271 to Golueke et al. as applied to claim 1 above, and further in view of Techniques of Laboratory Cultivation of Marine Algae, University of South Florida, St. Petersburg Dept. of Marine Science, Nov. 1983, page 42, 6, 7, and 40.

Regarding Claim 16, Meng as modified teaches the land based temperature controlled facility housing the plurality of sleeves, but does not implicitly teach a comprises a chiller to regulate the temperature (Meng Col. 4 line 68 and Col. 3 line 12). However, Techniques of Laboratory Cultivation of Marine Algae teaches that chillers are old and notoriously well-known selected pieces of equipment to achieve desired controlled temperatures (Techniques of Laboratory Cultivation of Marine Algae page 40). It would have been obvious to one of ordinary skill in the art to further modify the teachings of Meng at the time of the invention since the modification is merely the selection of a known mechanical equipment for means energy efficient means of achieving the controlled temperatures.

Response to Arguments

Applicant's arguments filed 28 January 2005 have been fully considered but they are not persuasive.

Regarding Claim 7 and the statement of "to allow rapid growth", this statement is very broad and subjective since it could be a day, hours, or years. Rapid in comparison to what, non-land based farming? Applicant should quantify the rapid growth, e.g. on page 11 line 5 of applicant's specification it is indicated that "The technology of the present invention has been successfully applied to a network of land-based ponds, to achieve yields up to 1 Kg/m²/week during the growing season."

Applicant has merely claimed "aeration". Applicant has not included in the claim language any negative recitation that excludes carbon dioxide. Furthermore, Meng teaches aerating with "fresh air" (Meng Col. 3 line 21) and Golueke teaches that the

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seaweed is capable of being aerated with atmospheric air (Golueke Col. 2 line 62).

Examiner maintains that it is old and notoriously well-known to aerate seaweed during maturation/inoculation/cultivation. Examiner would like to bring applicant's attention to cite prior art reference Techniques of Laboratory Cultivation of Marine Algae, University of South Florida, St. Petersburg Dept. of Marine Science, Nov. 1983, page 42, attached here to for reference. This further illustrates the accepted wisdom in the field of seaweed production and the utilization of aeration.

Applicant has not sufficiently established evidence of commercial success or long felt need. An applicant who is asserting commercial success to support its contention of nonobviousness bears the burden of proof of establishing a nexus between the claimed invention and evidence of commercial success. The term "nexus" designates a factually and legally sufficient connection between the evidence of commercial success and the claimed invention so that the evidence is of probative value in the determination of nonobviousness. *Demaco Corp. v. F. Von Langsdorff Licensing Ltd.*, 851 F.2d 1387, 7 USPQ2d 1222 (Fed. Cir. 1988). In order to be commensurate in scope with the claims, the commercial success must be due to claimed features, and not due to unclaimed features. An affidavit or declaration attributing commercial success to a product or process "constructed according to the disclosure and claims of [the] patent application" or other equivalent language does not establish a nexus between the claimed invention and the commercial success because there is no evidence that the product or process which has been sold corresponds to the claimed invention, or that whatever commercial success may have occurred is attributable to the product or process defined by the

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claims. The commercial success alleged is directly derived from the invention claimed, in a marketplace where the consumer is free to choose on the basis of objective principles, and that such success is not the result of heavy promotion or advertising, shift in advertising, consumption by purchasers normally tied to applicant or assignee, or other business events extraneous to the merits of the claimed invention.

Establishing long-felt need requires objective evidence that an art recognized problem existed in the art for a long period of time without solution. The relevance of long-felt need and the failure of others to the issue of obviousness depends on several factors. First, the need must have been a persistent one that was recognized by those of ordinary skill in the art. Second, the long-felt need must not have been satisfied by another before the invention by applicant.

The current language of applicant's amendment to claim 1 and 2, i.e. "optionally having a volume capacity of 40L and including ammonium chloride or sodium phosphate" does not make these limitations a required step. Applicant has used the term "optionally" thus indicating that it is not a requirement and therefore Meng as modified by Golueke is not required to teach these limitations. Meng as modified by Golueke teaches adding nutrients (Golueke Col. 2 line 34). Again the examiner would like to bring applicant's attention to cite prior art reference Techniques of Laboratory Cultivation of Marine Algae, University of South Florida, St. Petersburg Dept. of Marine Science, Nov. 1983, page 7 that teaches phosphate and ammonium additives are notoriously well-known cultivation additives.

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In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Examiner maintains that the modifications made to the main teachings of Meng are obvious modification for one of ordinary skill in the art based on accepted wisdom in the art and are not gleaned from applicant's disclosure. The teachings of Golueke are provide as a secondary reference to illustrate the accepted wisdom in the field. Golueke is cited merely to teach that it is old and notoriously well-known to cultivate the seaweed in seawater and that there is a known success in culturing in seawater and that it is known to produce seaweed on a commercial scale. It is irrelevant whether Golueke teaches the addition of sewage. The addition of sewage is merely the selection of an additional nutrient source. Changes to sizes and concentrations that easily derived through routine tests and experimentation do not present patentably distinct limitations.

Therefore, the examiner maintains that applicant has not patentably distinguished over the teachings of the cited prior art.


Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrea M. Valenti whose telephone number is 571-272-6895. The examiner can normally be reached on 7:00am-5:30pm M-Th.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter M. Poon can be reached on 571-272-6891. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Andrea M. Valenti
Patent Examiner
Art Unit 3643

07 April 2005